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Cover page

Mid-Summer Turkey Time is a joy for all of us, young and old alike, for who doesn't enjoy the king-like taste of turkey, whether it's hot or cold, baked, broiled, or barbecued? This is the time of the year when the leaf-green outdoor world welcomes us with open arms, allowing us to enjoy the warm kiss of the sun, or the cool shady woods or streams where the trout darts like a silver arrow.

In this cover photograph two of the nearly 200 million of us Americans are enjoying Mid-Summer Turkey Time. And the barbecue pit is not the only attraction, for a tasty cold salad, summer-gold corn on the cob, cold ham, and numerous other farm delights are sharing the turkeys' spotlight at this happy season of the year. Time was when turkeys were mostly a Thanksgiving and Christmas piece de resistance. But not now, thanks to the ingenuity of America's farmers who are producing more and more delicious turkeys the year 'round—and in the right sizes for every family.

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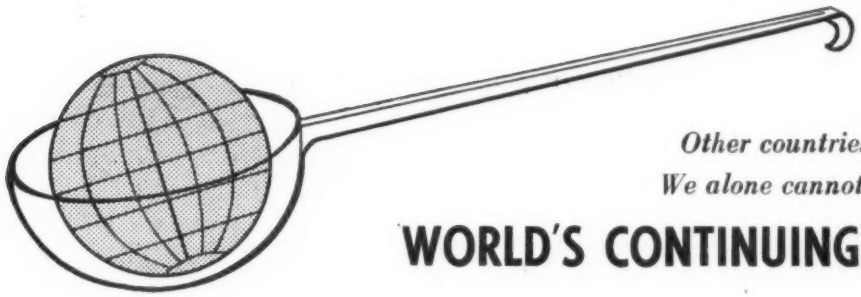

Other countries will have to help.
We alone cannot fill this huge gap.

WORLD'S CONTINUING FOOD GAP

by DR. WILHELM ANDERSON

IN MANY thickly populated parts of the world today, poverty is still the tiger picking at the bones of civilization. People whose diets continue critically short of calories and proteins remain vulnerable to crippling and fatal diseases. And, as undernourishment saps the vitality and energy of nations, it also makes them susceptible to political ills.

This is the finding of a task force of specialists in the field of international food and agriculture, who have recently completed a preliminary study of world food deficits.

In measuring the hunger of the world today, the task force report shows much of the world in want—Western Asia, Africa, the Far East, as well as in large portions of Latin America.

Put down in simple terms, the world's food shortage for next year is expected to equal more than a third of our own country's annual milk production, plus 40 percent of our yearly dry bean and pea output, and 120 percent of the United States' annual wheat production.

But even if the world produced these extra quantities of sorely needed foods, its gnawing hunger would not vanish magically. Many problems would remain—low purchasing power, various government policies, and longstanding food habits of distressed countries.

Some really formidable problems would rear their ugly heads in the process of getting food to needy people in these chaotic areas. Supplies would have to travel through limited port facilities as well as by inadequate inland transportation. Storage problems would arise—lack of space, hazards of climate, infestation of insects, to name but a few.

The logistics of getting food to the bare tables of the needy are of staggering proportions. Expressed in metric tons (2,204.6 pounds), this report arrives at these anticipated world food shortages for 1962:

Animal protein, in terms of nonfat milk solids: Far East, 900,000 tons; Communist Asia, 755,000 tons; Africa, 115,000 tons; Latin America, 10,000 tons. That's a whopping total of 1,780,000 tons.

Pulse protein, in terms of dry beans and peas: Africa, 215,000 tons; Far East, 145,000 tons; Western Asia, 19,000 tons—all with a total of 379,000 tons.

Other protein, in terms of wheat: Far East, 27,900,000 tons; Latin America, 4,000,000 tons; Africa, 3,700,000 tons; Western Asia, 17,000 tons—for a total of 35,617,000 tons.

Remaining calories needed to raise the diet to minimum standards, in terms of wheat: Communist Asia, 7,000,000 tons; Western Asia, 1,570,000 tons—total, 8,570,000 tons.

In order to measure diets, the research workers used reference standards for calorie requirements developed by the United Nations Food and Agriculture Organization. Because of variations in climate, body size, and proportion of adults and children, calorie requirements differ—from about 2,300 calories a day for the Far East to more than 2,700 for Canada and the Soviet Union.

Countries in the Far East with substandard diets, that is, below 2,300 calories, are Malaya, Thailand, Burma, the Philippines, Indonesia, Ceylon, India, South Korea, Pakistan, and Mainland China.

Western Asia countries with diets not meeting the 2,400 calories considered the standard for the area are Iraq, Syria, Jordan, and Iran.

Further, nine African countries show below-standard diets, under 2,375 calories. These countries are Egypt, Ethiopia, Sudan, Kenya, Algeria, Angola, Libya, Tanganyika, and Tunisia.

Latin American countries with substandard diets, that is, below 2,500 calories, are Panama, Paraguay, Venezuela, Colombia, Honduras, Guatemala, Peru, Nicaragua, El Salvador, Dominican Republic, Ecuador, Bolivia, and Haiti.

Taking into account the scope of this farflung problem, the report sounds this darkly realistic note: "While progress is being made, there is no assurance that the total food gap can be cleared soon." *We alone cannot fill this huge gap; other countries will have to help.*

(continued on page 16)

The author, now director of the Regional Analysis Division of USDA's Economic Research Service, was with the Foreign Agricultural Service when the report was made. He supervised the staff work and preparation of the report. A copy of the full report, "The World Food Deficit—A First Approximation," is available from the Information Division, Foreign Agricultural Service, USDA, Washington 25, D. C.

Research study supports current criteria

How well do USDA Grades measure Beef Quality?

by JOHN C. PIERCE

Heavy-weight Prime

Light weight Prime

Heavy-weight Good

Light-weight Good

Commercial

TENDERNESS, juiciness, flavor—these are the characteristics of beef that are important to the consumer. How well do the USDA grades for beef indicate these qualities?

Finding the answer to that question—and possibly finding clues to more objective methods of grading beef—were the goals of an extensive study conducted by the American Meat Institute Foundation through a contract with the Agricultural Marketing Service.

This study has just been published as the U.S. Department of Agriculture Technical Bulletin No. 1231. "Beef Muscle Characteristics as Related to Carcass Grade, Carcass Weight, and Degree of Aging." The results are both reassuring and, in a sense, disappointing.

They are reassuring in that the study shows a positive and consistent relationship between grade and palatability. In general, the higher grade was significantly more tender, juicier, and more flavorful than lower grades. The study indicated that the Federal meat grader's subjective estimate of beef palatability on the basis of USDA grade standards is just about as accurate as the available laboratory measures of raw beef.

However, the results of the study are disappointing in the sense that they do not provide definite information on how to improve the grade standards for beef and thus do a better job of grading. The study emphasizes the point that neither the present grades nor the laboratory analyses of beef are infallible guides to palatability.

It also indicates that palatability is affected by so many factors that a simple objective test for this attribute is unlikely in the near future. It is apparent that there is need for more research if we are to develop more accurate and more objective means of identifying the factors that affect the quality of beef.

The study involved 153 beef carcasses of three different grades—54 Prime, 72 Good, and 27 Commercial.

A representative of the Meat Grading Branch, Livestock Division, AMS, selected these carcasses as being typical of their grade classification. Carcass weights ranged from 400 to 800 pounds.

Tests were made on two wholesale cuts from each carcass—the rib and the round. The cuts were sampled and tested with no aging, again after 2 weeks' aging, and a third time after 4 weeks' aging at 33 to 35 degrees F. Extensive chemical, biochemical, physical, histological, and organoleptic data obtained from the tests were used to establish relationships, where possible, between the tenderness, juiciness, and flavor of the meat and the U. S. grade.

The U. S. grades for beef are based on the degree of marbling, firmness, color, and texture of the lean meat in relation to the age of the animal from which the meat was derived. Conformation is also a grade factor, but is not a measure of meat quality but rather of the proportion of meat to bone and the ratio of the more demanded to the less demanded cuts.

The study reported that ribeye from Prime carcasses, as compared to that from carcasses of Good and Commercial grades, had a lower shear strength, more press fluid, a greater specific conductance, less nitrogen, more intramuscular and "linear" fat, more marbling and brighter lean color.

Panel scoring confirmed that broiled rib steaks from Prime grade carcasses had better lean flavor and were more tender than those from Good grade carcasses. Beef from Good grade carcasses was generally more tender than from commercial grade but less juicy. Panel scoring on juiciness was . . . "remarkably well correlated with the marbling rating for the ribeyes of the grades tested."

The results of the study substantiate the belief that when carcasses are of comparable age, juicy, tender beef can be selected with reasonable accuracy on the basis of marbling characteristics.

Comments on differences between the two muscles studied—the ribeye and the round—included the statement that "broiled ribeye was

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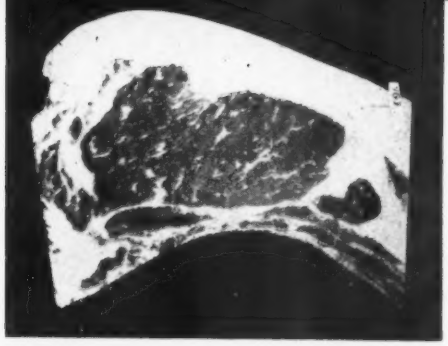
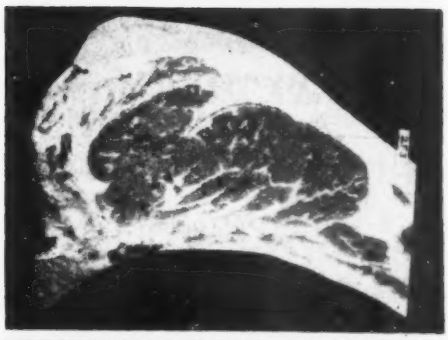
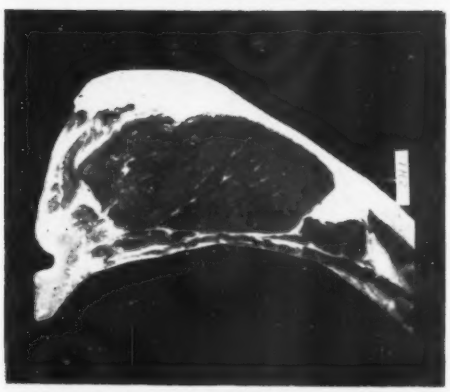
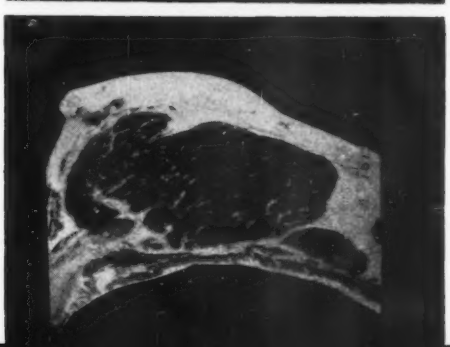
The author is Deputy Director, Livestock Division, Agricultural Marketing Service.









County agents, meeting in New York, to see

MARKETING IN ACTION

APPLES from Oregon or potatoes from Idaho, lettuce from the Salinas Valley or tomatoes from the San Joaquin—whatever the agricultural product, it's a sure bet that it's bought and sold, distributed and consumed in the New York Metropolitan area—the world's largest market.

The annual meeting of the National Association of County Agricultural Agents, slated for New York City, September 10 through 14, is offering county agents a unique opportunity to study the marketing of food products produced by the agriculture they serve.

Theme of the agent's session is "Marketing in Action." Panels, speakers, and "on-the-spot" tours will probe the inner workings—the methods and techniques, the problems and the possibilities—of this marketing system.

A nationally known food economist, Dr. Herrell DeGraff of Cornell's School of Nutrition will start the five-day session with his keynote address. University, industry, and government representatives then will join forces in a panel discussion of "New Horizons in Marketing." Dr. John Carew, Professor of Horticulture at Michigan State University will be moderator. Panel members will include New Jersey's Secretary of Agriculture, Phil Alampi, and Howard Nuss, Vice-President of the Welch Grape Juice Co., Westfield, N. Y.

A second panel will explore the agent's role in marketing. Panel members Dean T. K. Cowden of Michigan State; Bryce Ratchford, Director of Extension, Missouri; and, Marvin Anderson, Associate Director of Extension, Iowa, will discuss "New Challenges in Marketing for County Agents." Dr. M. C. Bond, Director of Extension, Cornell, will moderate.

In addition to the discussions, "on-the-spot" tours will provide agents with an opportunity to see marketing in action. Whatever his interest, be it fruit or flowers, milk or meat, eggplant or eggs, an agent will be able to see that commodity move through the marketing channels. Agents will be able to select from among these "on-the-spot" marketing tours: The Cotton Exchange in the Financial District; trading of potatoes, butter, and eggs in the Mercantile Exchange; wholesale facilities of The Great Atlantic and Pacific Tea Company; General Foods Kitchens; the Flower Market; the Essex Street city retail market; the 14th Street Market; Kosher meat operation in Brooklyn; milk marketing tour; facilities at International Air Terminal for handling ag products; National Biscuit Company; Maxwell House coffee roasting operation; the Washington Street Market in operation; the Fulton Street Fish Market; and many other places of interest.

Exploration of the purchasing, the financing, the assembly, and the distribution of food supplies to New York's millions will be a "once in a lifetime" education experience. New York is a unique "workshop" for the study of marketing. Although County Agricultural Agents have had a long history of working with marketing systems, the NACAA Annual Meeting in New York will greatly expand their knowledge of "Marketing in Action."

To test its effectiveness in upgrading diets of low-income families, USDA researchers are busy measuring the impact of

FOOD STAMP PROGRAM

by WILLIAM S. HOOFNAGLE and JANET H. MURRAY

THE U. S. Department of Agriculture is taking no chances with its vital Food Stamp Program which is designed to put more and better food on the tables of the Nation's needy families.

A scaled-down test version of the program got underway in June.

The test program for the plan is in eight areas of substantial chronic unemployment: Franklin County, Ill.; Floyd County, Ky.; Detroit, Mich.; the Virginia-Hibbing-Nashwauk area in northern Minnesota; Silver Bow County, Mont.; San Miguel County, N. M.; Fayette County, Pa.; and McDowell County, W. Va.

But well before the pilot project started, researchers had begun a series of surveys to measure the impact of the plan on food retailing and it effectiveness in upgrading diets of low-income families.

Specialists in the Economic Research Service, Statistical Reporting Service, and Agricultural Research Service are jointly studying the effect of the plan on retail food sales, household food use, and diets of food-stamp users.

Marketing researchers will measure the effect of the plan at the retail level by studying sales patterns before and after the plan goes into effect.

In their first four-week study period, the analysts will gather information on retail sales in a sample of food stores in each pilot area. They will collect figures on total retail food sales, sales of meats and produce, size and type of food store used, the amount of certain foods purchased per customer, and the number of customers per store.

About three months after the pilot plan has been underway, the researchers will check back to see how the increased food purchasing power produced by the stamp plan has affected sales.

The researchers will also audit sales outside the sphere of the stamp plan activity just to make certain that such variables as seasonality do not color their findings.

The retail phase of the survey will give the Department a pretty accurate picture of the shifts from one food group to another that result from the use of food coupons, and also the proportion of retail food sales by coupons.

A second research team will record the effect of the plan on household use of food. Before the pilot plan went into operation, the team surveyed 600 households in low-income areas in Detriot and 400 in rural and 400 in urban Fayette County, Pa.

After the stamp plan has had a chance to work for a few months, the researchers will return to re-survey the same households to check on changes that have taken place in food used.

The analysts will note buying practices of the households, the kinds and quantities of food used, whether the food was purchased, produced at home, or donated, and how much money was spent on food including meals eaten away from home.

The survey findings will give the Department a measure of the changes in food used in the home.

(continued on page 16)

Mr. Hoofnagle is Head of Development Analysis, Marketing Economics Research Division, Economic Research Service. Miss Murray is Chief, Survey Statistics Branch, Household Economics Research Service, Agricultural Research Service.

Miss Linda Lackey, 1961 Maid of Cotton, wears one of the most youthful of dance frocks. The cotton fabric—spanking white pique colored in somber shades of grey into black. Below, cotton knits are a fashion hit and Linda selects them for traveling.

COTTON

is women's favorite fabric

ALTHOUGH a multitude of man-made fibers have been introduced in recent years, cotton still ranks (with nylon) as the best known and as the most popular fiber. This is how 2,310 average American women viewed cotton in a USDA survey.

In an overall comparison, cotton received higher praise than four other materials for:

- Appearance
- Comfort (chiefly coolness and absorbency)
- Durability
- Inexpensiveness
- Ease of sewing or mending
- Versatility or adaptability

The comment most frequently made by the homemakers showed that one of the most important reasons cotton rates so highly is because it's so easy to launder and easy to iron.

Homemakers' preference for cotton is solidly backed up by what they have in their closets. Four times more women in the survey own readymade summer skirts and dresses made of cotton than of any other single fiber or fabric blend. And three times more women own summer blouses made of cotton than of any other material.

Incidentally, women who make their own summer blouses, dresses, and skirts have the strongest preference for cotton. About 80 percent of these women said they prefer cotton to other materials. But over 90 percent of them said they own cotton summer blouses and skirts, while less than 10 percent own summer blouses and skirts made of any other material.

Cotton heads the list of favorite materials for women's summer suits, too. However, only one woman in three owns at least one summer suit. About twice as many own between-season dresses though, with cotton the leader in both preference and ownership. In contrast to most of the clothing items covered in the survey, the women indicated they prefer cotton only slightly more than other materials for between-seasons dresses.

Only half of the women owned either raincoats or dual-purpose coats, or both. The greater proportion of these women said they did not have any fabric preference for rainwear. However, five times as many owned plastic raincoats as cotton coats.

The most frequently mentioned quality women like in cotton rainwear is weight and comfort of the fabric. Other major considerations are appearance and style, adaptability, durability, and care and laundering in that order.

Finding the right style, size, or fit are shoppers' most common problems, according to the answers homemakers gave in the survey. Although the material was an important factor in selecting a dress, less than half the women questioned thought the sales clerk knew much about the material. About half the women learned what the dress material was from the labels; another fourth said they recognized the material by sight or feel.

Other trends in preference for various articles of women's clothing also turned up in the USDA survey. For a copy of the complete survey results, write to Office of Information, USDA, Washington 25, D. C. Ask for MRR-493.

This article is based on a research study conducted by Margaret Weidenhamer, Standards and Research Division, Statistical Reporting Service.

POULTRY PROCESS

..... Yes

Improved marketing practices in poultry industry create one of our great modern success stories

1. Yesterday's poultry went to market in farmer's flivver.

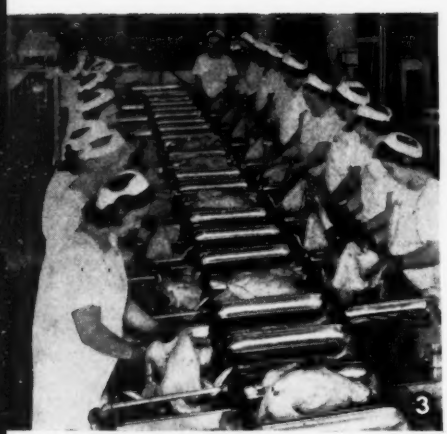
2. The New York dressed bird was commonplace in food stores.

3. This was the latest thing in automation—20 years ago.

4. Workers washed birds by hand.

5. In the late 1940's some local processors were still sending birds to market in this fashion.

6. This impressive, but unsanitary, display is a relic of the '20's.



SSING

Yesterday and Today

NOT SO VERY LONG AGO, poultry production and processing was a small-scale operation. Today it is one of our great mass-production success stories.

Poultry is not only a vastly improved product over what it was 10 years ago, but it sells for less. Surely it is one of the greatest bargains in good eating that is available to the American family today.

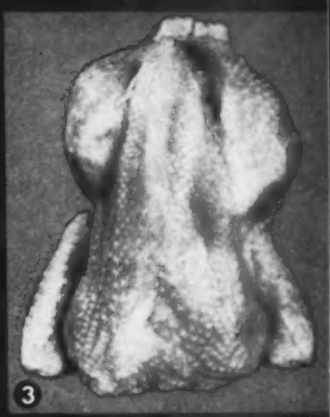
This modern food miracle was made possible by advances in production, processing, and marketing—unmatched by any other food industry. The whole operation has become a science—from breeding, proper nutrition, management, vaccines and medication to engineering in the automated processing plants.

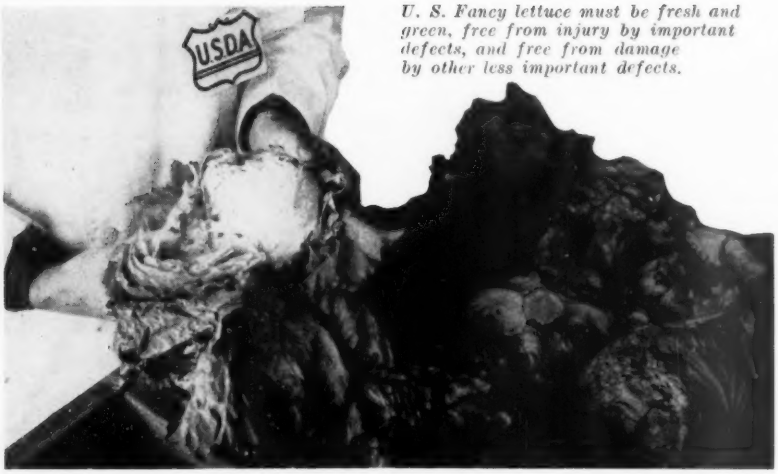
Improvements in processing equipment and techniques are constantly increasing efficiency and reducing costs. A large modern plant is able to process 50,000 chickens a day. USDA poultry inspectors supervise each step of the processing operation—examine every bird to make sure that it is wholesome and edible.

Today, cleanliness is the byword of the poultry industry. Processing plants are kitchen-clean. Birds are protected through all marketing channels to preserve their high quality.

Buying and preparing poultry today is both easy and convenient. Poultry is available at any time of the year, cleaned, wrapped, and completely ready-to-cook—fit for a banquet or a low-cost barbecue.

1. *Chickens come to plant now 5,000 at a time.*
2. *USDA inspectors check birds as they arrive.*
3. *Today's poultry—plump, juicy, ready-to-cook.*
4. *Processing plants are marvels of cleanliness.*
5. *Packaging, too, is under supervision by USDA.*
6. *Modern poultry display—fresh, clean, wholesome.*





U. S. Fancy lettuce must be fresh and green, free from injury by important defects, and free from damage by other less important defects.

U. S. Fancy . . . A new grade for LETTUCE

by LAURENCE E. IDE

THE LETTUCE INDUSTRY is keeping copies of the U.S. Grade Standards for Lettuce close at hand these days.

The standards acquired a "new look" when revisions went into effect July 1, and now even veteran lettuce men need to check the book when the contract specifies a particular U.S. grade.

The new grades were more than two years in the making. The first draft of the revisions was circulated through the lettuce industry late in 1959 and its comments and suggestions are incorporated in the new grades.

The most important changes, from the industry's view, are in the tolerances allowed for condition factors —such as tipburn, freezing injury, and discoloration.

However, the new U.S. Fancy grade included in the new standards could have a greater impact on produce trading in the long run.

The U.S. Fancy grade provides specifications for premium quality lettuce, with better appearance and quality than U.S. No. 1.

The unusual feature of U.S. Fancy lettuce is that it's guaranteed to have better keeping quality than average lettuce.

AMS researchers found that when lettuce is moved quickly from the field, cooled down as near to 32° as possible and then kept refrigerated, it has longer shelf life.

These results have been written into the new grade.

U.S. Fancy lettuce has to be loaded into a refrigerator car or truck, or put into refrigerated storage, within 6 hours from the time cutting is started in the field.

At time of loading, it must show a core temperature of 35 degrees or less.

This rapid cooling means that U.S. Fancy grade lettuce has a better chance of keeping its high quality until it reaches the consumer.

The Army's Quartermaster Corps was the first large buyer to make use of the AMS research data on the relation between low temperature and good keeping quality. For the past year they have been specifying the loading temperatures for their lettuce purchases, and other buyers have begun to specify loading temperatures too.

The temperature specifications are officially incorporated only in the U.S. Fancy grade, but buyers are free to specify loading temperatures on regular U.S. No. 1 shipments if they wish.

Eventually, temperature specifications might be written into standards for other produce that requires rapid, thorough cooling—such as sweet corn and celery.

Of course, U.S. Fancy lettuce must be more than just fresh. To quote the standards, it must be "free from decay, russet spotting and doubles, and free from injury caused by tipburn, downy mildew, freezing and discoloration . . . .".

The Fancy grade gives buyers who want premium quality lettuce the convenience of a U.S. grade. Now, instead of spelling out a long list of conditions in the contract, they can simply specify U.S. Fancy.

The new tolerances for condition defects in all grades are based on the fact that the condition of the produce never improves during shipment, and generally declines a bit, even with the best of care.

The new grades allow fewer defects at shipping point but somewhat more at destination. This increase is permitted only for condition factors—those that may change during shipment.

The old U.S. No. 1 grade, for example, allowed a straight 10 percent tolerance for defects both at shipping point and at destination.

The new grade allows only 8 percent defects at shipping point, but the tolerance at receiving point has been raised to 12 percent.

The "new look" in lettuce standards also includes some other changes in definitions and a statistical method for applying tolerances. Altogether, it's an effort toward keeping the lettuce standards as useful as possible to the industry.

The author is a staff member of the Fresh Products Standardization and Inspection Branch, Fruit and Vegetable Division, AMS.

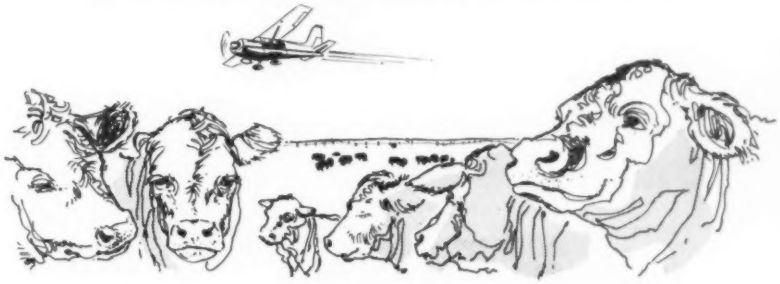
FLYING STATISTICIANS

Cattle feeding is big business in Nebraska—on January 1, about 668,000 head were in feedlots there. Demands from feeders and others for more information on the feeding situation are increasing. Nebraska's agricultural statisticians have taken to the air to meet this demand.

Once a year, they rent a plane and fly over the concentrated feeding areas looking for new feedlots. After landing, the new lots are visited and the operators are asked to cooperate on the 'cattle on feed' report.

State estimates are sent to Washington where they are reviewed and combined into a national report by the Crop Reporting Board.

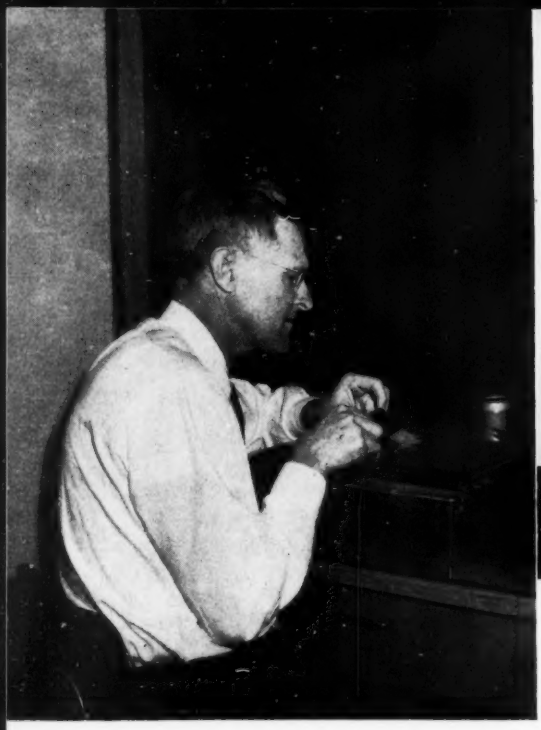
Statisticians chat with an operator whose feedlot they spotted from the air. After they land, the 'stats' drive out to the feedlots and ask the operators if they'll cooperate by reporting their operations. Most do.



Statisticians check their plans before 2-hour flight over the feedlots. During flight two statisticians mark the location of new feedlots on maps, a third acts as navigator.

Statisticians analyze and interpret reports sent in by feedlot operators—and come up with an estimate for the State. Estimates are sent to Washington where they're reviewed and combined into national report by Crop Reporting Board.

Mission accomplished. The feedlot operator reads the 'cattle on feed' report, which helps him plan his operation. The State statisticians send the report to operators and others interested in keeping up with cattle feeding situation.



Top, Miss Nickerson holding Godlove Award for Contributions to Knowledge of Color. On table are the Nickerson Color Fan and Munsell Color Tree.

Left USDA's Dr. Oren Justice is also current vice-president of the International Seed Testing Assn., which works under United Nation's FAO.

USDA and INDUSTRY honor AMS scientists . . . FOR OUTSTANDING ACCOMPLISHMENTS

DR. OREN L. JUSTICE

USDA recently honored Dr. Justice with a Superior Service Award for notable leadership in national and international seed testing activities which was a substantial contribution to the advancement of seed technology, seed testing, and seed law enforcement in the United States and throughout the world.

He personally supervised the preparation of, and helped to write "Testing Agricultural and Vegetable Seeds," Agricultural Handbook No. 3, which is considered the most complete and comprehensive one in its field. It is the "bible" for seed testers in all parts of the world.

The International Rules for Seed Testing reflect the influence which Dr. Justice has earned in the world of seed. It was Dr. Justice who first framed the rules sponsored by U. S. in 1950 and later adopted in Dublin in 1953. After these rules were adopted the tedious work began of resolving the differences that prevailed in various parts of the world. This work has been considered outstanding and exemplary in internation cooperation.

DOROTHY NICKERSON

Dorothy Nickerson, color technologist in AMS' Cotton Division, has just received the Godlove Award of the Inter-Society Color Council for outstanding contributions to the knowledge of color in science, art, and industry. She is the third recipient of this honor.

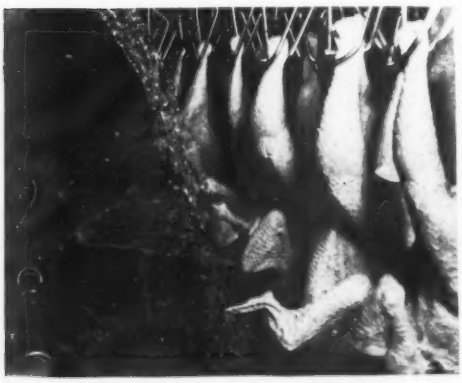
Miss Nickerson is internationally known for her studies of the color rendering of light sources and for the methods of maintaining color standards perfected by her for classing cotton in the United States, and which are now used throughout the world. She is also nationally known for her work on light sources for color grading, for the Nickerson Color Fan—a convenient systematic collection of 262 color chips used as color standards in horticulture.

A past president and secretary of the Inter-Society Color Council, Miss Nickerson is a Trustee of the Munsell Color Foundation, and the author of more than 30 papers in various scientific and technical publications. She has also served extensively on color committees of the Optical Society of America, the American Society for Testing Materials, the Illuminating Engineering Society, and the Internation Commission on Illumination.

New Poultry Regulation Benefits Consumers

Federal inspection now providing added protection as USDA takes action to reduce water absorption by poultry

As soon as the evisceration process is over, the body heat must be quickly removed and birds chilled to 40° F. or less to preserve their wholesomeness, good eating quality.



Some absorption of water by poultry is unavoidable as the birds must be thoroughly washed at various stages of the processing.

by DR. ROY E. WILLIE

AMERICAN food shoppers now have added protection in buying Federally inspected poultry.

This was provided August 1, when USDA amended poultry inspection regulations to minimize and reduce water absorption by poultry.

Some water absorption is inevitable in processing ready-to-cook poultry. Processors must use large quantities of water to turn out scrupulously clean, completely ready-for-the-pan-or-oven poultry that consumers expect—in fact, it is required under Federal inspection.

Good sanitation requires that the birds be thoroughly washed at various stages of processing. As soon as the evisceration process is over, the body heat must be quickly removed and birds chilled rapidly to 40° F. or less to preserve their wholesomeness and good eating quality.

Ice and water or refrigerated water is the best way to do this. Some absorption of this water by the poultry is unavoidable and has proved acceptable in good commercial practice ever since the advent of ready-to-cook processing some 20 years ago.

The need to regulate this absorption came about more recently, however, as innovations in processing equipment and techniques tended to increase water pickup by poultry beyond what is considered necessary.

Agricultural Marketing Service's Poultry Division first began work on the problem in January 1959 when the Poultry Products Inspection Act went into effect. This law requires Federal inspection for wholesomeness of all poultry processed in plants dealing in interstate commerce. It also requires that poultry processed under inspection be free from adulteration and be accurately labeled.

At the time the Act went into effect very little was known about water absorption by poultry. So a continuing study was set up to determine the normal moisture level resulting from good processing and chilling techniques.

First results of this study were used more than a year ago, in May 1960, to set preliminary limits on water absorption for poultry that was to be consumer packaged or frozen, or both. Since poultry that is ice-packed (in wholesale boxes) loses through drainage during the marketing process at least half of the water absorbed during processing and chilling, regulation of water absorption for this type of packaging was not then considered necessary.

As the study progressed, however, it was found that even ice-packed poultry was tending to retain an unnecessary amount of moisture when certain types of processing equipment and techniques were employed. And with further information available after a year of study, it was found that one of the preliminary moisture limits could be lowered.

These, then, are the limits that USDA has placed on the amount of moisture that Federally inspected poultry may contain. For poultry that is to be consumer packaged or frozen, or both: turkeys 20 pounds and over—4½ percent (reduced from the preliminary limit of 6 percent); turkeys 10 to 20 pounds—6 percent; turkeys under 10 pounds—8 percent; chickens 5 pounds or less—8 percent; all other kinds and weights of poultry—6 percent.

For ice-packed poultry, the limit is 12 percent at the processing plant—this amount, the studies have shown, will be reduced through drainage so that by the time the poultry reaches the retail store, where it is weighed for sale, the moisture level will be well within the limits set for consumer packaged and frozen products.

With this regulation in effect, consumers are assured that poultry bearing USDA inspection mark contains no added moisture beyond that necessary to provide them with a clean and wholesome product.

The author is Chief, Inspection Branch, Poultry Division, Agricultural Marketing Service.

THE CHANGING MARKET

CANTALOUPS

Agricultural Marketing Service researchers have tested three new shipping containers for cantaloups that can save the industry $3 million a year and provide a better quality product for the consumer.

A cut of $3 million in marketing costs is a big reduction, particularly for a comparatively small-volume commodity as cantaloups. This saving is about 6 percent of the average farm value of cantaloups for 1957-58.

The savings would come from reduced costs for the containers and more economical packing, loading, transportation, and refrigeration procedures.

Three types of containers were studied by the researchers: the Western Growers Association crate similar to the regular wooden nailed cantaloup crate except with wider slats and panel-end construction; a wirebound crate with ⅔ of the capacity of the WGA crate; and a two-thirds capacity telescoping fiberboard crate.

All three of the new containers give better protection than the standard wooden crate.

Test shipments of the two-thirds capacity fiberboard boxes had only one-twentieth as many damaged containers during transit as the conventional crate. The WGA jumbo crates had half as many damaged containers, while the wirebound crate sustained only one-fourth as much damage. These reductions in the rate of container damage could cut the cost of broken crates by about $1 million a year.

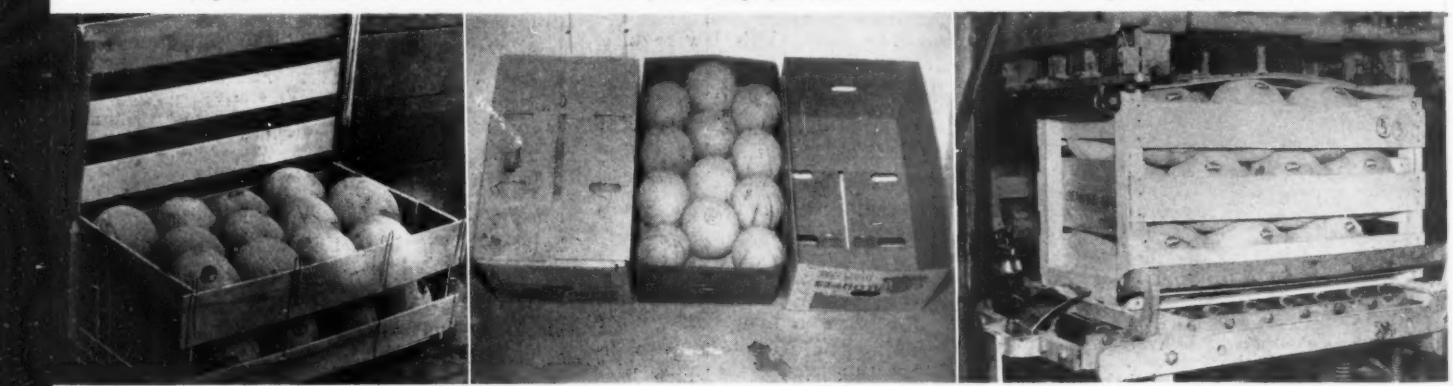
Of course, this also means a reduction in melon damage. On an average, almost 7 percent of the melons packed in the regular wooden box are damaged enough to affect their grade. This compares with 1 percent for the fiberboard box, 2 percent for the wirebound crate, and about 4 percent for the WGA jumbo crate.

Shipping temperatures are not adversely affected by the three new crates. Melon temperatures were within the proper range in most of the test shipments.

Packing costs for all the containers are nearly the same as for the standard wooden box. However, the total cost of packing and shipping cantaloups in standard-size loads from central California to New York City is less for only two of the new containers than for the standard wooden crate—26 cents less for the fiberboard container and 5 cents for the WGA crate. The wirebound test crate costs 9 cents more to ship than the standard crate.

By taking advantage of the low freight rates on heavier loaded rail cars, grower-shippers can save even more money. If one more layer is added to the regular 3-layer rail car

Shipping tests by researchers showed that three new containers are cheaper to pack and ship, and that they protect melons better than the jumbo wooden crate. One of the new containers is an improved jumbo crate with wider slats and panel-end construction (right). The other two are a wirebound crate and a full-telescope fiberboard box, each two thirds as large as the jumbo crate.



- New Shipping Containers for Cantaloups
- Insecticides for Fruit and Vegetable Cull Dumps
- Improved Truck Shipments for Avocados and Limes

load, almost $125 is saved per car with the conventional crate. This compares with a saving of almost $200 per car for the WGA crate, $285 for the wirebound crate, and about $10 for the fiberboard boxes.

INSECTICIDES

Many growers and packers of peaches, tomatoes, and melons dump their culls near cropland or processing plants.

According to scientists from the Agricultural Marketing Service, this isn't good. All too often cull dumps attract dried fruit beetles and vinegar flies, insect pests that then go on to infest nearby processing plants and crops.

Actually, the culls do not have to be near plants and crops to cause damage. Vinegar flies have been known to travel over 6 miles in 24 hours and beetles over 4 miles during the same period of time.

One way to control these pests in cull dumps—other than not dumping the fruit in the first place—is to plow the fruit under.

Marketing scientists have now reported from preliminary studies that certain insecticides will also do the trick.

Guthion, a 15 percent wettable powder, is an effective insecticide. In tests, it prevented any larva development for 2 weeks when applied at the rate of 1 pound per 100 square feet. About 8 gallons of the solution should be used per 100 square feet for good penetration.

The scientists also tested endrin 2 percent, heptachlor 5 percent, and malathion at 4 percent and 10 percent. While these tests were not as extensive as those with the Guthion, all of the compounds gave good results. Costs were also lower.

By using one, or a combination of the insecticides, growers and processors should be able to control insects in cull dumps.

AVOCADOS

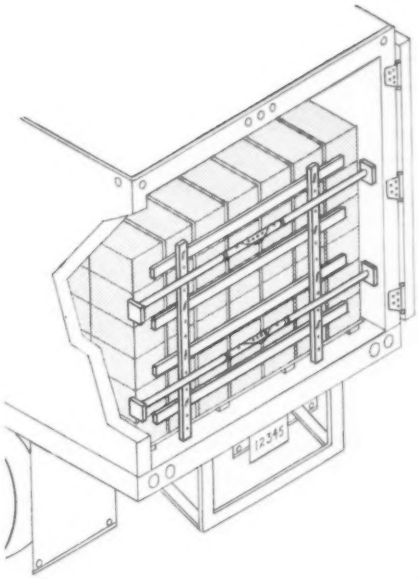
Florida avocados and limes can be trucked to market with less overheating and chilling, and with less shifting and container damage if the load is stacked and braced according to AMS recommendations.

USDA transportation researchers recently developed an improved loading pattern which makes it possible to cool the fruit more rapidly after loading and to maintain it at more uniform temperatures during transit.

Closer control of fruit temperatures during shipment helps to prevent spoilage and to extend shelf life of the fruit. And this, in turn, saves money. One shipper who used the new loading method during part of last season said he saved $10,000 by having less overripened, spoiled, and rejected fruit and less container damage.

The new loading method is simply a matter of carefully planning and securing the load. Also, if avocado and lime containers of different capacities had common outside dimensions, the improved load pattern could be more easily and effectively used.

The main idea, of course, is to



allow a good flow of refrigerated air throughout the load. This is done by stacking the containers to form continuous air channels from front to rear. A 6-inch space also is required between the rear of the load and the trailer doors.

To keep the stacks in place, crosswise strips are nailed to the layers of wooden avocado flats throughout the load. Vertical and diagonal strips are nailed to the rear stacks. And, the entire load is capped with a layer of containers placed tight from sidewall to sidewall.

Rearward shifting is prevented by placing two entire sections of wooden floor racks between the last stack of the load and the rear doors.

All of the test fruit loaded in the new pattern with the improved methods cooled faster after loading, had more uniform temperatures en route, and arrived in better condition than fruit shipped in conventional loads.

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World's Food Gap

(continued from page 3)

Also, the underfed countries must help themselves. But where there is extreme poverty plus illiteracy, exhausted soils and limited land resources, one finds resistance to change in farming methods. And the reason is simple: Since crop failure means famine, farmers fear any changes which might cause lower yields, or even crop failure. So they often live on the edge of subsistence, even when help is available.

The USDA study brings into sharp focus the immensity of the problem many nations are desperately trying to cope with—the United States through its Food-for-Peace Program—other countries through their own programs—and the United Nations through its special programs and its Food and Agricultural Organization.

One of the most challenging developments of the 20th century is the fact that man has the technical know-how for eliminating hunger. In large sections of the Western World this goal has virtually been achieved. And this USDA report shows how far we must yet go to achieve it on a worldwide scale.

* * *

Measuring Beef Quality

(continued from page 4)

more tender and juicy and had a better lean flavor than broiled round. However, the tenderness of the round was improved more by aging than was that of the ribeye."

The report concludes that aging for 2 weeks improved the fat flavor, lean flavor, and tenderness of broiled ribeye, but "An additional 2-week aging period was usually detrimental to lean and fat flavor and had little additional tenderizing influence."

* * *

Food Stamp Program

(continued from page 6)

They will, furthermore, measure improvements in diets resulting from the use of food coupons.

The household survey will also record any changes in the frequency and size of food purchases and the use of credit.

Public opinion of the merits of food stamp operations is also important to the success of the program. Once everyone has time to become familiar with the program, researchers will check reaction to the program by coupon users and retailers.

The Food Stamp Program was developed to help low-income families and individuals obtain adequate diets from America's abundance of food. The retail and household research projects will provide information that will help the program accomplish its aims.

* * *

Midsummer Turkey Time

Midsummer Turkey Time is now in full swing.

This event is part of the turkey industry's "Operation Crash," a dynamic promotional campaign to expand the market for 1961's record crop of turkeys.

Joining in this annual celebration of Midsummer Turkey Time is USDA's Agricultural Marketing Service which features turkeys on its Plentiful Foods List for August.

To accelerate the campaign, USDA and the turkey industry have enlisted the help of all segments of the food trades as well as the news media.

Retailers are using streamers, banners, posters, and food demonstrations to emphasize summer turkey cookery.

In many areas, turkey merchandising clinics are being held to enable retailers to exchange promotion ideas.

At the same time, delicious turkey entrees are being prepared by institutional feeders—school lunch directors, restaurateurs, hospital dietitians, and caterers.

The press and magazines are featuring articles on turkey production, new turkey products, turkey in nutrition, and turkey recipes. Singing turkey commercials and other TV and radio spots are heard continually.

Yes, everyone—the producer, the food industry, the consumer, and the U.S. Department of Agriculture—is "talking turkey" in recognition of the turkey growers who have produced an estimated 99 million birds this year.

Growth Through Agricultural Progress